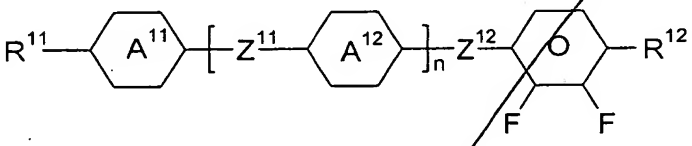
Patent Claims

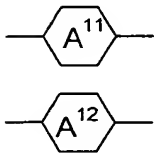
1. A nematic liquid-crystal medium, which comprises

a) a dielectrically negative, liquid-crystalline component A which comprises one or more dielectrically negative compounds of the formula I

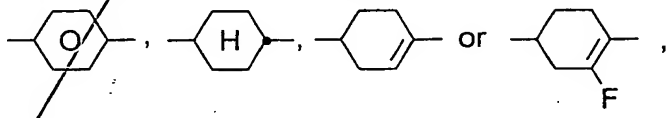


I

in which



and are, independently of one another,



R^{11} is alkyl having from 1 to 7 carbon atoms, alkoxy having from 1 to 7 carbon atoms or alkenyloxy having from 2 to 7 carbon atoms,

R^{12} is alkyl or alkoxy having from 1 to 7 carbon atoms or alkenyl, alkenyloxy or alkoxyalkyl having from 2 to 7 carbon atoms,

one of Z^{11} and Z^{12} is OCF_2 or CF_2O, and the other is a single bond, and

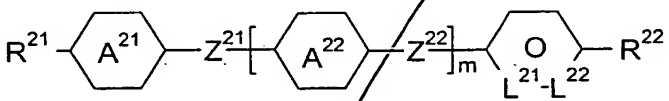
n is 0 or 1, and

b) a dielectrically negative, liquid-crystalline component, B and

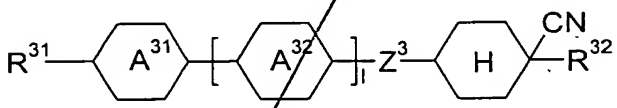
c) a dielectrically neutral, liquid-crystalline component C, and

d) a dielectrically positive, liquid-crystalline component D.

2. A liquid-crystal medium of claim 1, wherein component B comprises one or more compounds selected from the group consisting of the compounds of the formulae II and III



II



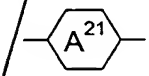
III

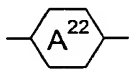
in which

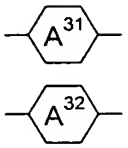
R^{21} is alkyl or alkoxy having from 1 to 7 carbon atoms or alkoxyalkyl, alkenyl or alkenyloxy having from 2 to 7 carbon atoms,

R^{22} is alkyl or alkoxy having from 1 to 7 carbon atoms or alkoxyalkyl, alkenyl or alkenyloxy having from 2 to 7 carbon atoms,

Z^{21} and Z^{22} are each, independently of one another, $-CH_2-CH_2-$, -CH=CH-, -C≡C-, -COO- or a single bond,

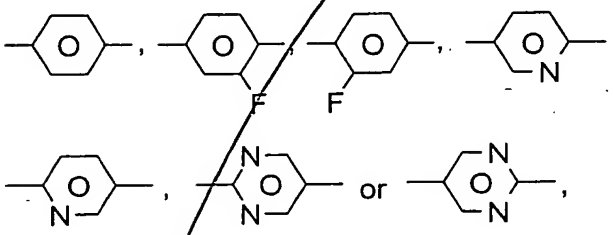
 and

 and



and

are each, independently of one another,



L^{21} and L^{22} are both C-F or one of the two is N and the other is C-F,

m is 0 or 1,

Z^3 is $-CH_2-CH_2-$, -CH=CH-, -C≡C-, -COO- or a single bond,

R^{31} and R^{32} are each, independently of one another, alkyl or alkoxy having from 1 to 7 carbon atoms or alkoxy-alkyl, alkenyl or alkenyloxy having from 2 to 7 carbon atoms, and

l is 1 or 2.

3. A liquid-crystal medium of Claim 2, which comprises one or more compounds of the formula II.

4. A liquid-crystal medium of Claim 2 which comprises one or more compounds of the formula III.

5. A liquid -crystal medium of Claims 1 which comprises a component C.

6. A liquid-crystal medium of Claim 1, which comprises a component D.

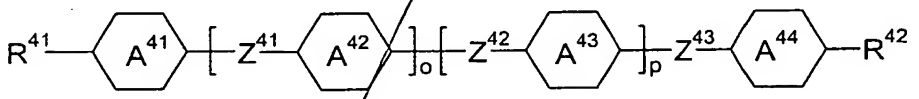
7. An electro-optical display comprising a liquid-crystal medium according of Claim 1.

8. A display according to Claim 7, which is an active matrix display.

9. A display according to Claim 7 which is an ECB or IPS display.

10. The liquid-crystal medium of claim 1, wherein R^{11} is alkyl, alkoxy, or alkenyloxy of Z to 4 carbon atoms and one of Z^{11} or Z^{12} is OCF_2.

11. The liquid-crystal medium of claim 5, wherein component C comprises at least one compound of the formula IV.

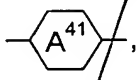


IV

in which

R^{41} and R^{42} are each, independently of one another, as defined above for R^{21} in the case of the formula II,

Z^{41}, Z^{42} and Z^{43} are each, independently of one another, $-CH_2CH_2-$, -CH=CH-, -COO- or a single bond,



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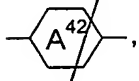

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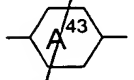

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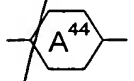
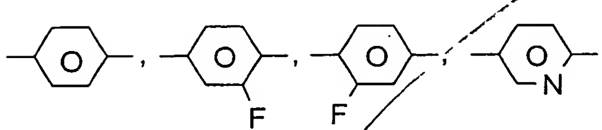
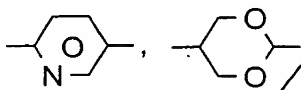
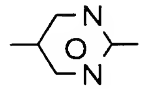


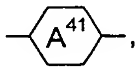
are each, independently of one another,

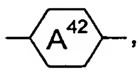


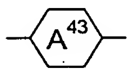
 or  and

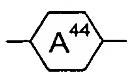
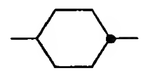
o and p, independently of one another, are 0 or 1,

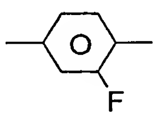
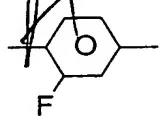
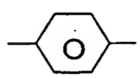
12. The liquid-crystal medium of claim 6, wherein component D comprises at least one compound of the formula V.

 ,

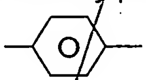
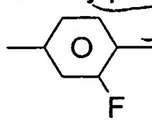
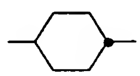
 ,

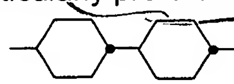
 and

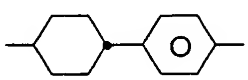
 are each, independently of one another, 

 ,  or  ,

and very particularly preferably at least two of these rings

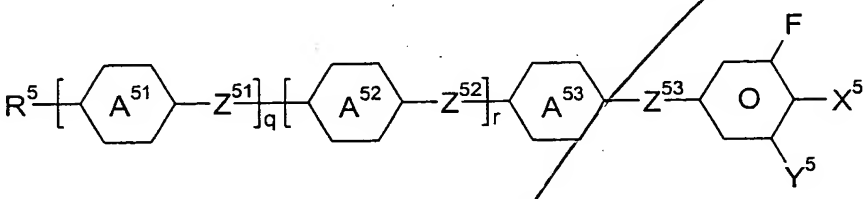
 ,  and/or  ,

where two adjacent rings are very particularly preferably linked directly to one another, preferably 

or 

and optionally

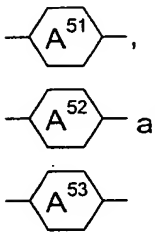
d) one or more dielectric positive compound(s) of the formula V



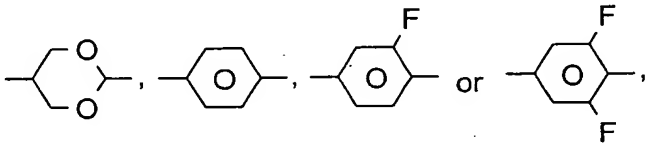
V

R^5 is alkyl or alkoxy having from 1 to 7 carbon atoms, or alkoxyalkyl, alkenyl or alkenyloxy having from 2 to 7 carbon atoms,

Z^{51}, Z^{52} and Z^{53} are each, independently of one another, $-CH_2-CH_2-$, -CH=CH-, -C≡C-, -COO- or a single bond,



are each, independently of one another,



X^5 is F, OCF_2H or OCF_3, and

Y^5 is H or F, preferably F in the case where X = F or OCF_2H, and

q and r are each, independently of one another, 0 or 1.

In a further preferred embodiment, the medium comprises one or more dielectrically negative compounds of the formula VI.

13. The liquid-crystal medium of claim 1, which comprises 5% to 85% by weight of component A, 5% to 85% by weight of component B, 0 to 50% by weight of component C and 0 to 40% by weight of component D.

14. A. display according to claim 8, which further comprises a this film transistor or varistor.

15. A display according to cliam 7, which further comprises a three-pole switching element.